### Functional Groups Ch 7 (1315342)

**Question 12345678910111213**

1. Arrange the following compounds in order of increasing boiling point.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>HO—C—C—OH</td>
<td>H—C—C—OH</td>
<td>H—C—C—H</td>
</tr>
<tr>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
</tbody>
</table>

--- Select --- C < --- Select --- B < --- Select --- A

2. Cinnamaldehyde, shown below, occurs naturally in the bark of cinnamon trees and gives cinnamon its flavoring.
   
   (a) Identify the aldehyde functional group by clicking on the image.

   ![Aldehyde Functional Group](rect:144,2,208,87)

   (b) Identify the double bond by clicking on the image. Is the double bond cis or trans?

   ![Double Bond](rect:91,27,138,76)

   - cis
   - trans

3. Zyrtec (cetirizine) is an antihistamine used as an allergy medicine.

   (a) Identify the carboxylic acid functional group.

   ![Carboxylic Acid Functional Group](rect:321,132,369,188)

   (b) Is the carboxylic acid in its neutral or ionic form?
(c) Identify an amine functional group in the molecule.

Are they in their neutral or ionic form?

What other functional groups are present in Zyrtec? (Select all that apply.)

- alcohol
- aldehyde
- amide
- aromatic ring
- ester
- ether
- ketone
- thiol
- thioester

4. List the functional groups in the atypical antipsychotic aripiprazole, shown below. What is "atypical" about these antipsychotics?
5. These drugs only affect the neuronal pathway associated with feelings and not the neuronal pathways associated with movement.

6. Which of the following alcohols are found in alcoholic beverages such as wine and beer?
   (a) ethanol
   (b) methanol
   (c) tert-butanol
   (d) isopropanol
   (e) propanol

7. Which statement best describes the relationship between the following two molecules?
   (a) They react in the same way.
   (b) They have the same boiling point.
   (c) They have the same solubility.
   (d) They are isomers.
   (e) All of the above.

8. Which statement best describes the following molecule?
   (a) This molecule is a primary ether.
   (b) This molecule is a secondary alcohol.
   (c) This molecule is a tertiary ether.
   (d) This molecule is a primary alcohol.
   (e) This molecule is a tertiary alcohol.
8. Question Details: What is the IUPAC name of this molecule?

(a) 2-ethyl-5-pentanol
(b) 4-ethyl-1-pentanol
(c) 4-methyl-1-hexanol
(d) 5-methyl-1-hexanol
(e) 3-methyl-6-hexanol

9. Question Details: Select the statement that best describes why ethers have lower boiling points than alcohols of the same molecular weight.

(a) Ethers cannot hydrogen bond with water.
(b) Ethers cannot hydrogen bond to one another.
(c) Alcohols can hydrogen bond with water.
(d) Ethers can hydrogen bond with water.
(e) Alcohols cannot hydrogen bond to one another.

10. Question Details: Which of the following molecules contains an aldehyde?

(a) propanol
(b) propanamide
(c) propanoic acid
(d) propanal
(e) propanone

11. Question Details: Which functional groups are in the following molecule of aspirin?

(a) a phenol, two ketones, and an alcohol
(b) a benzene ring, a carboxylic acid, an ether, and a ketone
(c) a benzene ring, two ketones, an ether, and an alcohol
(d) a benzene ring, a carboxylic acid, and an ester
(e) a benzene ring, an ester, a ketone, and an alcohol

12. Question Details: Can adrenaline form hydrogen bonds, and if so, which functional groups are involved?
13. Question Details

(a) No, adrenaline is too stable to form hydrogen bonds.
(b) No, adrenaline has an aromatic ring that prevents it from forming hydrogen bonds.
(c) Yes, the amine hydrogen bonds.
(d) Yes, the alcohol hydrogen bonds.
(e) Yes, both the alcohol and amine hydrogen bond.

Cocaine use increases dopamine concentrations in the brain. A person who has recently consumed cocaine may exhibit symptoms that mimic_______.

(a) Lou Gehrig's disease (amyotrophic lateral sclerosis)
(b) schizophrenia
(c) any one of several neurotransmitter deficiency diseases.
(d) Parkinson disease
(e) Alzheimer's disease

Assignment Details